

AMENDMENTS TO THE CLAIMS

1. (currently amended): A method of adjusting the brightness of an image, the method comprising the steps of:

acquiring image data by an image acquisition device;

expressing a pixel value of each pixel in said image data as a set of three mutually independent components;

defining the brightness of each pixel based on said three components and;

~~determining a rate of pixels based on a number of pixels having a maximum brightness among all pixels, wherein the maximum brightness among all pixels is taken from a group of commonly encountered brightness; and~~

automatically making an adjustment to said pixel value~~image~~ based on the rates~~so that a rate (ratio) of pixels having a maximum brightness is equal to a predetermined rate (ratio).~~

2. (currently amended): The method as set forth in claim 1, wherein said image acquisition device is a digital camera and the adjustment to said image ~~acquisition device~~ is an ~~pre-photography~~ adjustment to an exposure value ~~at the time of photographing by said digital camera~~using previously acquired image data.

3. (currently amended): The method as set forth in claim ~~2~~1, wherein said pixel value is a value expressed in terms of a linear scale or power scale and wherein the adjustment to said ~~exposure value~~image is made based on the following transformation Eq. (1):

$$\begin{pmatrix} R' \\ G' \\ B' \end{pmatrix} = k \begin{pmatrix} R \\ G \\ B \end{pmatrix} \dots \quad (1)$$

where R', G', and B' are the three components after a transformation; R, G, and B are the three components before a transformation; and k is a constant determined according to said rate.

4. (currently amended): The method as set forth in claim 21, wherein said pixel value is a value expressed in terms of a logarithmic scale and the adjustment to said ~~exposure value~~image is made based on the following transformation Eq. (2):

$$\begin{pmatrix} R' \\ G' \\ B' \end{pmatrix} = \begin{pmatrix} R \\ G \\ B \end{pmatrix} + \begin{pmatrix} k \\ k \\ k \end{pmatrix} \dots \quad (2)$$

where R', G', and B' are the three components after a transformation; R, G, and B are the three components before a transformation; and k is a constant determined according to said rate.

5. (currently amended): The method as set forth in claim 1, wherein said image acquisition device is a data acquisition device for acquiring an image as digital data and the adjustment to said ~~pixel value~~image is a data transformation process of transforming the acquired digital data.

6. (original) The method as set forth in claim 5, wherein said pixel value is a value expressed in terms of a linear scale or power scale and said data transformation process is a process based on the following transformation Eq. (1):

$$\begin{pmatrix} R' \\ G' \\ B' \end{pmatrix} = k \begin{pmatrix} R \\ G \\ B \end{pmatrix} \dots \quad (1)$$

where R', G', and B' are the three components after a transformation; R, G, and B are the three components before a transformation; and k is a constant determined according to said rate.

7. (original): The method as set forth in claim 5, wherein said pixel value is a value expressed in terms of a logarithmic scale and said data transformation process is a process based on the following transformation Eq. (2):

$$\begin{pmatrix} R' \\ G' \\ B' \end{pmatrix} = \begin{pmatrix} R \\ G \\ B \end{pmatrix} + \begin{pmatrix} k \\ k \\ k \end{pmatrix} \dots \quad (2)$$

where R', G', and B' are the three components after a transformation; R, G, and B are the three components before a transformation; and k is a constant determined according to said rate.

8. (original): The method as set forth in any one of claims 1 through 7, wherein said brightness is defined by the following Eq. (3):

$$L = \max(R, G, B) \quad (3)$$

where L is the brightness of a pixel; R, G, and B are the three components; and max(x, y, z) is the maximum value among x, y, and z.

9. (currently amended): A digital camera comprising:

image pick-up means for photographing an image and acquiring image data in which a pixel value of each pixel is expressed as a set of three mutually independent components;

brightness analyzing means for computing a histogram of the brightness of said pixel defined based on said three components for said image data acquired by said image pick-up means; and

exposure control means for automatically making an adjustment to an exposure value at the time of photographing ~~on the basis of~~ according to said histogram ~~so that a rate of~~

~~pixels based on a number of pixels having a maximum brightness among all pixels becomes a predetermined rate, wherein the maximum brightness among all pixels is taken from a group of commonly encountered brightness~~so that a rate (ratio) of pixels having a maximum brightness is equal to a predetermined rate (ratio).

10. (canceled)

11. (canceled)

12. (currently amended): The digital camera as set forth in ~~any one of~~ claims 9 through 11, wherein said brightness is defined by the following Eq. (3):

$$L = \max(R, G, B) \quad (3)$$

where L is the brightness of a pixel; R, G, and B are the three components; and $\max(x, y, z)$ is the maximum value among x, y, and z.

13. (currently amended) An image processor comprising:

data acquisition means for acquiring an image as digital data in which a pixel value of each pixel is expressed as a set of three mutually independent components;

brightness analyzing means for computing a histogram of the brightness of said pixel defined based on said three components for said digital data acquired by said data acquisition means; and

data transformation means for automatically performing a data transformation process on the acquired digital data ~~on the basis of~~according to said histogram ~~so that a rate of pixels based on a number of pixels having a maximum brightness among all pixels is made a predetermined rate, wherein the maximum brightness among all pixels is taken from a group of commonly encountered brightness~~so that a rate (ratio) of pixels having a maximum brightness is equal to a predetermined rate (ratio).

14. (original): The image processor as set forth in claim 13, wherein said pixel value is a value expressed in terms of a linear scale or power scale and said data transformation process is process based on the following transformation Eq. (1):

$$\begin{pmatrix} R' \\ G' \\ B' \end{pmatrix} = k \begin{pmatrix} R \\ G \\ B \end{pmatrix} \dots \quad (1)$$

where R', G', and B' are the three components after a transformation; R, G, and B are the three components before a transformation; and k is a constant determined according to said rate.

15. (original): The image processor as set forth in claim 13, wherein said pixel value is a value expressed in terms of a logarithmic scale and said data transformation process is a process based on the following transformation Eq. (2):

$$\begin{pmatrix} R' \\ G' \\ B' \end{pmatrix} = \begin{pmatrix} R \\ G \\ B \end{pmatrix} + \begin{pmatrix} k \\ k \\ k \end{pmatrix} \dots \quad (2)$$

where R', G', and B' are the three components after a transformation; R, G, and B are the three components before a transformation; and k is a constant determined according to said rate.

16. (original): The image processor as set forth in any one of claims 13 through 15, wherein said brightness is defined by the following Eq. (3):

$$L = \max(R, G, B) \quad (3)$$

where L is the brightness of a pixel; R, G, and B are the three components; and $\max(x, y, z)$ is the maximum value among x, y, and z.

17. (currently amended) A method of adjusting the brightness of an image, the method comprising the steps of:

acquiring image data by an image acquisition device;
 expressing a pixel value of each pixel in said image data as a chrominance value;
 defining the brightness of each pixel based on said chrominance value and;
~~determining a rate of pixels based on a number of pixels having a maximum brightness among all pixels, wherein the maximum brightness among all pixels is taken from a group of commonly encountered brightness; and~~
~~automatically making an adjustment to said pixel value based on the rate so that a~~
rate (ratio) of pixels having a maximum brightness is equal to a predetermined rate (ratio).

18. (currently amended) A digital camera comprising:
 image pick-up means for photographing an image and acquiring image data in which a pixel value of each pixel is expressed as a chrominance value;
 brightness analyzing means for computing a histogram of the brightness of said pixel defined based on said chrominance value for said image data acquired by said image pick-up means; and
 exposure control means for automatically making an adjustment to an exposure value at the time of photographing ~~on the basis of~~ according to said histogram so that a rate of pixels ~~based on a number of pixels~~ having a maximum brightness among all pixels ~~becomes a~~ is

~~equal to a predetermined rate, wherein the maximum brightness among all pixels is taken from a group of commonly encountered brightness.~~

19. (currently amended) An image processor comprising:

data acquisition means for acquiring an image as digital data in which a pixel value of each pixel is expressed as a chrominance value;

brightness analyzing means for computing a histogram of the brightness of said pixel defined based on said chrominance value for said digital data acquired by said data acquisition means; and

data transformation means for automatically performing a data transformation process on the acquired digital data ~~on the basis of~~ according to said histogram so that a rate of pixels ~~based on a number of pixels~~ having a maximum brightness among all pixels is ~~made equal to a predetermined rate, wherein the maximum brightness among all pixels is taken from a group of commonly encountered brightness.~~ equal